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09/900,293	07/06/2001	Ranganathan Nagarajan	33726-00016	6097

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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 01/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/900,293

### Applicant(s)

NAGARAJAN, RANGANATHAN

### Examiner

Luz L. Alejandro

### Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 20-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification, as originally filed, does not provide a description of the claimed apparatus. Especially, the claimed etching tool and the opening enlarging tool have not been described in the specification.

Claims 20-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification, as originally filed, fails to provide support for the limitations of "an etching tool adapted to enlarge vertical etch process steps" and "an opening enlarging tool adapted to enlarge said opening in said mask" as claimed.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20-22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Nowak et al., U.S. Patent 5,865,896.

Nowak et al. discloses an apparatus which is capable of performing an etching process, having inductive and capacitive coupling modes which can be selected individually or in combination. Note that the apparatus comprises a coil antenna 26, a ceiling 24 and a wafer pedestal 44, all which can be connected to either ground or to a RF power through switches 34, 38, and 52, respectively. The apparatus of Nowak et al. is capable of being used as an ICP RIE etching apparatus and is capable of running two etch processes alternately. Furthermore, note that the apparatus of Nowak et al. is capable of being used as an etching tool and an opening enlarging tool.

With respect to claims 21-22 and 24, such limitations are directed to method limitations instead of apparatus limitations and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand since a variety of methods can be done with the apparatus. The method limitations are viewed as intended use which do not further limit, and therefore do not patentably distinguish the claimed invention. The apparatus of Nowak et al. is capable of etching a

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wafer comprising said claimed mask and resist layer, and is capable of operating in a multi step manner.

Claims 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Koshimizu, U.S. Patent 5,935,373.

Koshimizu discloses an apparatus which is capable of performing an etching process, having inductive and capacitive coupling modes which can be selected individually or in combination. Note that the apparatus comprises a coil antenna 112, and a wafer pedestal 106, connected to RF powers 118 and 132, respectively, and grounded sidewalls 102. The apparatus of Koshimizu is capable of running two etch processes alternately. Furthermore, note that the apparatus of Koshimizu is capable of being used as an etching tool and an opening enlarging tool that also has the capability of operating in a pulsed manner.

With respect to claims 21-22 and 24, such limitations are directed to method limitations instead of apparatus limitations and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand since a variety of methods can be done with the apparatus. The method limitations are viewed as intended use which do not further limit, and therefore do not patentably distinguish the claimed invention. The apparatus of Koshimizu is capable of etching a wafer comprising said claimed mask and resist layer, and is capable of operating in a multi step manner.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nowak et al., U.S. Patent 5,865,896 in view of Koshimizu, U.S. Patent 5,935,373.

Nowak et al. is applied as above but does not expressly disclose that the etch process tool and the opening enlarging tool are incorporated in a tool that operates in a pulsed manner. Koshimizu discloses a plasma apparatus comprising an antenna 112, and a wafer pedestal 106, being connected to RF powers 118 and 132, respectively, that can be pulsed in order to control the characteristics of the process being performed in the apparatus (see figs. 1, 2 and 3a-3b, and their descriptions). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Nowak et al. as to incorporate the etch process tool and the opening enlarging tool in a tool that operates in a pulsed manner in order to control the characteristics of the process being performed in the apparatus.

***Response to Arguments***

Applicant's arguments filed 11/07/03 have been fully considered but they are not persuasive. Applicant argues that the enablement rejection made in the previous office

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action is improper because the apparatus has been described in the specification.

However, the rejection was made under enablement which means that one of ordinary skill in the art would not have been taught how to make and/or use in the invention.

While the specification states that a ICP RIE tool must be modified, it does not show one of ordinary skill in the art how to make the modified version of the apparatus or how to use the adapted version of the apparatus. Additionally, there is no written description of the modified version of the apparatus and therefore a rejection under the written description section of 35 USC 112, first paragraph, is also added.

Concerning applicant's arguments regarding the Nowak reference, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Furthermore, note that a rejection under 35 USC 102 of claims 20-24 was also made with the Koshimizu reference but no arguments have been provided so that rejection is also maintained.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
Luz L. Alejandro  
Primary Examiner  
Art Unit 1763

January 25, 2004